

amended

4. (Amended) The commutator motor as set forth in claim 1, further comprising:
means for cooling said second coil wire, which is disposed at a periphery of said outer
coil.

REMARKS

Favorable reconsideration of the above-identified patent application in light of the foregoing amendment and the following remarks is respectfully requested.

Claims 1-4 remain active in the application, being amended for purely formal reasons (to insert a semicolon that was inadvertently omitted in the claim as originally filed, to insert paragraph breaks for readability, and to eliminate redundant words), and not for reasons related to patentability.

Independent Claim 1 recites:

1. (Amended) A commutator motor comprising:
an iron core having plural slots that are used for coil winding;
a rotation shaft inserted in a center of said iron core;
a pair of first and second commutators mounted on said rotation shaft at opposite ends of said iron core;
a first coil wire connected to the first commutator, and wound on bottoms of the slots of said iron core to form an inner coil;
a second coil wire connected to the second commutator, and wound on said inner coil in the slots of said iron core to form an outer coil;
a first terminal that can be connected to a first power source to supply electric power of said first power source to said *first coil wire* through said first commutator; and
a second terminal that can be connected to a second power source to supply electric power of said second power source to said *second coil wire* through said second commutator;
wherein a diameter of said second coil wire is smaller than that of said first coil wire. (emphasis added)

In the Office Action dated June 28, 2002, Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP54-47016 (Nakanishi) in view of JP63-194540 (Yasuhiro *et al.*), the Office Action correctly admitting:

Nakanishi do not disclose the coil wire connected to the second commutator having **a smaller diameter** that of the coil wire connected to the first commutator and a means for cooling. (emphasis added)

The Office Action cites the Yasuhiro *et al.* reference to attempt to overcome the shortcomings of the Nakanishi reference. The Office Action states, without specific substantiation:

Yasuhiro disclose ... the coil wire (13) of the second commutator has a **diameter smaller** than that of the coil wire (10) of the first commutator (emphasis added)

Applicant respectfully traverses the rejection, and disagrees with this unsubstantiated statement from the Office Action.

Applicant submits that the Yasuhiro *et al.* reference does **not** disclose that the coil wire 11 of second commutator 13 has a diameter smaller than that of the coil wire 10 of the first commutator 12: With respect to the coil wires, the Yasuhiro *et al.* reference merely teaches that coil wire 10 (for low voltage) and coil wire 11 (for high voltage) are wound around a rotor 9, the coil wire 10 being connected to commutator 12 for low voltage, and coil wire 11 being connected to commutator 13 for high voltage.

Thus, the Yasuhiro *et al.* reference does not overcome the shortcomings of the the Nakanishi reference in the context of the present invention. Both the Yasuhiro *et al.* and Nakanishi references fail to disclose, teach or suggest that the coil wire of the second commutator has a diameter smaller than that of the coil wire of the first commutator. Therefore, even if Nakanishi's AC/DC commutator were somehow "combined" with Yasuhiro's coil structure, the

resulting combination would not yield the above feature of the commutator motor of the present invention.

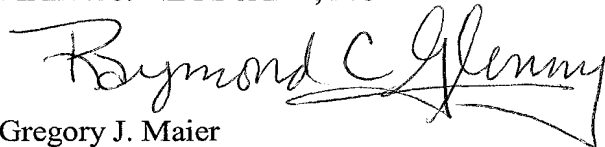
In addition, as described in pages 3-4 of the present specification, Applicants emphasize that because the outer coil formed by use of the smaller-diameter second coil wire is disposed at the peripheral side of the iron core, there is an advantage of efficiently cooling the second coil wire. By implication, this efficient cooling helps to prevent the second coil wire from being burned during an overload condition. As a result, the present invention provides a commutator motor with a high degree of reliability and safety that is not provided by the arrangements described in the cited references.

Because neither the structure nor the advantages of the claimed invention are provided by the references, considered either individually or in combination, Claims 1-4 cannot reasonably be said to be obvious thereover. Therefore, reconsideration and withdrawal of the rejection, and allowance of Claims 1-4, are respectfully requested.

In view of the present amendment and in light of the foregoing discussion, it is respectfully submitted that the pending claims are allowable and that the case is in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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